(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

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5. (AS ONCE AMENDED HEREIN) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

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(d) providing an optical amplifier between any two adjacent segments of said plurality of segments; and

(e) providing a dispersion compensator in said optical amplifier except when said optical amplifier corresponds to at least one end of said second segment,

said optical amplifier comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

10. (AS ONCE AMENDED HEREIN) A system according to claim 15, wherein each of said segments is formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

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11. (AS ONCE AMENDED HEREIN) A system according to claim 15, wherein said optical signal has a wavelength of about 1.55 μm.

15. (AS ONCE AMENDED HEREIN) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent ones of said segments; and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range,

wherein

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said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

16. (AS ONCE AMENDED HEREIN) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent ones of said segments; and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range,

wherein

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

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18. (AS ONCE AMENDED HEREIN) A system according to claim 21, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

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19. (AS ONCE AMENDED HEREIN) A system according to claim 21, wherein said optical signal has a wavelength of about 1.55 μm.

20. (AS ONCE AMENDED HEREIN) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical transmitter, except when said optical transmitter corresponds to at least one end of said second segment,

wherein

said optical transmitter comprises an E/O converter for converting an electrical signal into said optical signal, and a postamplifier for amplifying said optical signal; and

said dispersion compensator being provided between said E/O converter and said postamplifier.

21. (AS ONCE AMENDED HEREIN) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

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an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

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a dispersion compensator provided in said optical amplifier, except when said optical amplifier corresponds to at least one end of said second segment,

wherein

said optical amplifier comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

22. (AS ONCE AMENDED HEREIN) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver, except when said optical receiver corresponds to at least one end of said second segment,

wherein

said optical receiver comprises a preamplifier for amplifying said optical signal, and an O/E converter for converting said optical signal into an electrical signal; and

said dispersion compensator being provided between said preamplifier and said O/E converter.

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23. (AS ONCE AMENDED HEREIN) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical transmitter, except when said optical transmitter corresponds to at least one end of said second segment,

wherein

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into said optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

24. (AS ONCE AMENDED HEREIN) A system for optical transmission adopting dispersion compensation, comprising:

an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

an optical transmitter for supplying an optical signal to said optical fiber transmission line from one end thereof;

an optical receiver for receiving said optical signal from the other end of said optical fiber transmission line;

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an optical amplifier provided between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver, except when said optical receiver corresponds to at least one end of said second segment,

wherein

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

Please Add the following NEW claims:

25. (AS NEW HEREIN) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of

segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical transmitter.

26. (AS NEW HEREIN) A method according to claim 25, wherein each of said plurality of segments are formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

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27. (AS NEW HEREIN) A method according to claim 25, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

28. (AS NEW HEREIN) A method according to claim 25, wherein an optical signal supplied by the optical transmitter comprises a plurality of optical signals having different wavelengths obtained by wavelength division multiplexing.

29. (AS NEW HEREIN) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator in said optical amplifier except when said optical amplifier corresponds to at least one end of said second segment,

said optical amplifier comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

30. (AS NEW HEREIN) A method according to claim 29, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

31. (AS NEW HEREIN) A method according to claim 29, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

32. (AS NEW HEREIN) A method according to claim 29, wherein an optical signal supplied by the optical transmitter comprises a plurality of optical signals having different wavelengths obtained by wavelength division multiplexing.

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33. (AS NEW HEREIN) A system comprising:

an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical transmitter.

34. (AS NEW HEREIN) A system according to claim 33, wherein each of said plurality of segments are formed from a single-mode fiber having a zero-dispersion wavelength of about 1.3 μm.

35. (AS NEW HEREIN) A system according to claim 33, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

36. (AS NEW HEREIN) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one

second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical amplifier except when said optical amplifier corresponds to at least one end of said second segment,

said optical amplifier comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

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37. (AS NEW HEREIN) A system according to claim 36, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

38. (AS NEW HEREIN) A system according to claim 36, wherein an optical signal supplied by the optical transmitter has a wavelength of about 1.55 μm.

39. (AS NEW HEREIN) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprises an E/O converter for converting an electrical signal into an optical signal supplied by the optical transmitter, and a postamplifier for amplifying said optical signal; and

said dispersion compensator being provided between said E/O converter and said postamplifier.

40. (AS NEW HEREIN) A system according to claim 39, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

41. (AS NEW HEREIN) A system according to claim 39, wherein an optical signal has a wavelength of about 1.55 μm.

42. (AS NEW HEREIN) A system comprising:

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an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver except when said optical receiver corresponds to at least one end of said second segment,

said optical receiver comprises a preamplifier for amplifying an optical signal supplied by the optical transmitter, and an O/E converter for converting said optical signal into an electrical signal; and

said dispersion compensator being provided between said preamplifier and said O/E converter.

43. (AS NEW HEREIN) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprises a plurality of E/O converters each for converting an electrical signal into an optical signal, a front-stage amplifier and a rear-stage amplifier cascaded with each other, and an optical multiplexer having a plurality of input ports respectively connected to said plurality of E/O converters and an output port connected to said front-stage amplifier; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

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44. (AS NEW HEREIN) A system according to claim 43, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

45. (AS NEW HEREIN) A system according to claim 43, wherein an optical signal has a wavelength of about 1.55 μm.

46. (AS NEW HEREIN) A system comprising:

an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

a dispersion compensator provided in said optical receiver except when said optical receiver corresponds to at least one end of said second segment,

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting an optical signal supplied by the optical transmitter into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

47. (AS NEW HEREIN) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical receiver comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other, a plurality of O/E converters each for converting said optical signal into an electrical signal, and an optical demultiplexer having an input port connected to said rear-stage amplifier and a plurality of output ports respectively connected to said plurality of O/E converters; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

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48. (AS NEW HEREIN) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments each having a length falling within a predetermined range;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent ones of said segments; and

(e) providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, wherein,

said optical amplifier comprises a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

49. (AS NEW HEREIN) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent segments of said plurality of segments; and

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(e) providing a dispersion compensator in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

50. (AS NEW HEREIN) A method according to claim 49, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

51. (AS NEW HEREIN) A method according to claim 49, wherein an optical signal has a wavelength of about 1.55 μm.

52. (AS NEW HEREIN) A method for optical transmission adopting dispersion compensation, comprising the steps of:

(a) providing an optical fiber transmission line composed of a plurality of segments, wherein said plurality of segments includes at least one first segment formed from a single-mode

fiber and at least one second segment formed from a dispersion shifted fiber;

(b) providing an optical transmitter for supplying an optical signal to said optical fiber transmission line at one end of said optical fiber transmission line;

(c) providing an optical receiver for receiving said optical signal from said optical fiber transmission line at the other end of said optical fiber transmission line;

(d) providing an optical amplifier between any two adjacent segments of said plurality of segments; and

(e) providing a dispersion compensator in said optical receiver except when said optical receiver corresponds to at least one end of said second segment,

said optical receiver comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other; and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

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53. (AS NEW HEREIN) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical amplifier.

54. (AS NEW HEREIN) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, each having a length falling within a predetermined range, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

providing a dispersion compensator providing a dispersion selected from a plurality of stepwise varying dispersions determined according to said predetermined range, said dispersion compensator being provided between a front-stage amplifier and a rear-stage amplifier of said optical receiver.

55. (AS NEW HEREIN) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the transmission line, and an optical amplifier located between any two adjacent segments of said plurality of segments; and

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providing a dispersion compensator in said optical transmitter except when said optical transmitter corresponds to at least one end of said second segment,

said optical transmitter comprising a front-stage amplifier and a rear-stage amplifier cascaded with each other, and

said dispersion compensator being provided between said front-stage amplifier and said rear-stage amplifier.

56. (AS NEW HEREIN) A method according to claim 55, wherein said first segment has a zero-dispersion wavelength of about 1.3 μm, and said second segment has a zero-dispersion wavelength of about 1.55 μm.

57. (AS NEW HEREIN) A method according to claim 55, wherein an optical signal has a wavelength of about 1.55 μm.

58. (AS NEW HEREIN) A method comprising:

providing an optical fiber transmission line composed of a plurality of segments, said plurality of segments including at least one first segment formed from a single-mode fiber and at least one second segment formed from a dispersion shifted fiber, said optical fiber transmission line including an optical transmitter and an optical receiver located at opposite ends of the